

# ABSTRACT

A bipolar transistor 120 comprises a substrate 1, a intrinsic base region 11 and an extrinsic base region 12. The intrinsic base region 11 comprises a silicon buffer layer 109 comprised of silicon which is formed on the substrate 1, and a composition-ratio graded base layer 111 which is formed on the silicon buffer layer and comprises silicon and at least germanium and where a composition ratio of the germanium to the silicon varies in a thickness direction of the composition-ratio graded base layer 111. The extrinsic base region 12 comprises an extrinsic base formation layer 113 comprised of silicon which is formed on the substrate and adjacent to the silicon buffer layer. And the thickness of the extrinsic base formation layer 113 is not less than 40nm.